

WHAT IS CLAIMED IS:

1. A method for topographic genotyping comprising the steps of:

placing a biological specimen having DNA of a patient under a microscope;

inspecting the biological specimen microscopically with the microscope;

choosing a microscope sized target on the biological specimen based on its histopathologic characteristics;

separating the target from the specimen;

obtaining DNA sequences from the target so the DNA sequences can be amplified;

amplifying the DNA sequences; and

detecting mutations in the DNA sequences.

2. A method as described in Claim 1 wherein the biological specimens include tissue sections, cytological fluids, filter or cellular specimens.

3. A method as described in Claim 1 wherein the specimen is a tissue section and the separating step includes the steps of slicing the target from the section and placing the target on a glass slide.

4. A method as described in Claim 1 wherein the specimen is a tissue section and the cutting step includes the step of placing the target in a tube.

5. A method as described in Claim 1 wherein the specimen is a filter and the separating step includes the steps of cutting an arc segment from a filter and placing the segment in a tube.

6. A method as described in Claim 1 wherein the obtaining step includes the step of extracting the DNA from the target.

7. A method as described in Claim 6 wherein the extracting step includes the step of placing the target in a lysis buffer.

8. A method as described in Claim 7 wherein after the step of placing the target in a lysis buffer, there is the step of adding phenol chloroform into the lysis buffer with the target.

9. A method as described in Claim 8 wherein after the adding step, there is the step of separating short length fragments of DNA being less than 100 base pairs in length from the target.

10. A method as described in Claim 1 wherein the amplifying step includes the steps of choosing a primer corresponding to a gene of the patient; adding the primer to the DNA sequences; and performing polymerase chain reaction on the DNA sequences with primer.

11. A method as described in Claim 1 wherein the detecting step includes the step of determining the DNA sequence.

12. A method as described in Claim 11 including after the determining step, there is the step of comparing the DNA sequence with known DNA sequences for corresponding DNA regions of the target.

13. A method as described in Claim 1 including after the detecting step, there is the step of establishing whether the DNA sequence is associated with a cancer, and applying a treatment regime to attack the cancer.

14. A method as described in Claim 13 including before the applying step, there is the step of identifying a source in the patient for the cancer.

15. A method as described in Claim 1 including after the detecting step, there is the step of establishing whether the DNA sequence is associated with a condition hazardous to the health of the patient.

16. A method for topographic genotyping comprising the steps of:

separating a section from a specimen of fixative treated tissue;

obtaining DNA sequences from the section;

amplifying the DNA sequences by cycling them in a PCR machine, with each cycle heating them to a temperature no greater than 99°C, and then back to a temperature of 55°C in 5 minutes; and

detecting mutations in the DNA sequences.

17. A method as described in Claim 16 wherein the separating step includes the step of cutting one to three 2-6 micron thick histologic sections from the specimen.